IN THE CLAIMS

29. (currently amended) Artificial urinary diversion apparatus extending in a longitudinal direction comprising a first area having a plurality of first cross-sectional areas perpendicular to said longitudinal direction and a first outer surface, a second area having a plurality of second cross-sectional areas perpendicular to said longitudinal direction and a second outer surface, and a third area having a plurality of third cross-sectional areas perpendicular to said longitudinal direction and a third outer surface, said second area being disposed between said first area and said third area, said first area including at least one outlet, said third area including at least one inlet, at least one of said plurality of first and second cross-sectional areas being smaller than at least of one of said plurality of third cross-sectional areas and at least one of said plurality of first cross-sectional areas being greater than at least one of said plurality of second cross-sectional areas, a sphincter mechanism for opening and closing said outlet, and control means for controlling said sphincter mechanism, said first, second and third outer surfaces comprising the outer surface of said apparatus having a shape in a plane perpendicular to said longitudinal direction corresponding to the 6th polynomial function

$$F(x) = A + a_1 x + a_2 x^2 + a_3 x^3 + a_4 x^4 + a_5 x^5 + a_6 x^6$$

wherein A is between 0 and 2, a_1 is between 0 and 8, a_2 is between 0 and -2, a_3 is between 0 and 1, a_4 is between 0 and -0.1, a_5 is between 0 and 0.003, and a_6 is between -0.00001 and 0 and x is between 0 and 22.

Claims 30-66 (canceled).

67. (previously presented) The artificial urinary diversion apparatus of claim 29 wherein said outer surface of said apparatus comprising said first, second and third outer

surfaces as a shape in a plane parallel to said longitudinal direction which corresponds to the 6th polynomial function

$$F(x) = A + a_1x + a_2x^2 + a_3x^3 + a_4x^4 + a_5x^5 + a_6x^6$$

wherein A is between 0 and 2, a_1 is between 0 and 8, a_2 is between 0 and -2, a_3 is between 0 and 1, a_4 is between 0 and -0.1, a_5 is between 0 and 0.003, and a_6 is between -0.00001 and 0 and x is between 0 and 22.

68. (previously presented) The artificial urinary diversion apparatus of claim 67 wherein said first, second and third areas are integrally formed.